Inventions & Innovation Project Abstract

Chemically Inert Membranes for Separation of Solvent/Oil Mixtures

Separation of organic mixtures, such as solvents/oil mixtures, by distillation accounts for nearly 3 percent of total US energy consumption. There is an immediate need for solvent resistant polymeric membranes in petrochemical, pharmaceutical, and food industries to replace high capital and energy intensive distillation processes with more efficient membrane separations.

PoroGen LLC is proposing to develop a robust polymeric hollow fiber membrane module for separation of solvent/oil mixtures. This project is to develop a robust solvent resistant membrane in hollow fiber configuration and a commercial size membrane module. Membrane separation processes that utilize the novel membrane technology will replace the high capital cost and energy intensive distillation processes currently in use by food, petrochemical and pharmaceutical industries. The membrane module will undergo laboratory testing utilizing representative organic solvent mixtures. The benefits of novel technology will be specifically demonstrated for deasphaltation and dewaxing applications by separating high hydrocarbons from organic extraction solvents (pentane and methyl ethyl ketone).

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